

REMARKS

The Examiner has cited Beaman '654 and Lambert '376. The Applicant respectfully traverses this rejection and requests reconsideration and allowance of the claims under consideration. Claim 1 was amended in December 2001. Claim 1 states that the elastomeric device includes a plurality of electrically conductive contact pads integral with the matrix. These pads are each in electrical contact with a plurality of the conductive pathways through the elastomeric matrix, each made of a plurality of conductive particles.

In contrast, Beaman discloses a three-dimensional interconnection package in which a number of rigid substrates 8 can be interconnected with an electrical interconnection means 49 that can comprise an elastomer with a number of conductive wires therethrough. Beaman's preferred elastomer is disclosed in Figures 5 and 6. The Beaman elastomer construction technique is disclosed in Figures 11 through 22. As best shown in Beaman's Figure 6 and as described at Column 6, Line 39 through Column 7, Line 6, elastomeric interposer 80 of Beaman comprises a number of parallel angled wires 84 each of which has a flattened spheroidal end 92 and a protruding fully spheroidal end 90. As described at Column 6, Lines 47 through 57 of Beaman, these enlarged ends 90 through 92 move laterally as the elastomer is compressed between boards 94 and 96, Figure 6, to produce what is called "wiping action" that makes a good electrical contact between the enlarged ends and the pads on boards 94 and 96, such as pads 104 and 106. This wiping action is a lateral movement of the wire ends against the pads that scrapes through oxides on the surfaces of the pads.

Beaman does not disclose or suggest placing pads, such as pads 104 and 106, integral with the matrix, as in Claim 1. Indeed, the Beaman elastomeric connector could not use pads integral with the matrix, as then there would be no protruding conductor ends to accomplish the critical wiping action. Beaman depends on the wire end to pad lateral movement as part of the electrical interconnection process, which requires protrusions in order to accomplish the wiping action. Thus, any use of pads in the Beaman elastomeric interconnect is not at all appropriate, and is clearly improper under 35 USC 103.

There also is no suggestion in Beaman to replace the rigid substrates 8 with a compressible elastomeric material. Substrate 8, as described in Column 3, Line 42 through 51, is a multilayered packaging substrate that is highly thermally conductive and is preferably made of synthetic diamond as described in Column 5, Lines 35 through 49. Substrate 8 in Beaman thus must be both multilayered and highly thermally conductive. Elastomer materials are poor thermal conductors and thus could not be substituted in Beaman and achieve the necessary heat-conductive function of the Beaman substrates. In addition, it is not seen by any means how Beaman could accomplish a multilayer wiring substrate with an elastomeric device. Additionally, if the Beaman substrates 8 were made of an elastomeric material, the entire package would be compressible and highly unstable. Since an elastomeric matrix indeed could not be used for the Beaman substrate, it would be improper to reject Claim 1 in light of any suggestion to use an elastomer for substrate 8 in Beaman.

Lambert is an example of the type of prior art disclosed in Figure 1 of the present application. It would clearly be improper to substitute the Lambert conductive particle

conductors for the wire conductors of the elastomeric interconnect 80 shown in Figures 5 through 8 in Beaman. Beaman requires the use of conductive wires that can be formed at their ends into the spherical shape at the top end 90 and the flattened spherical shape at the bottom end 92. This formation is described primarily in Column 11, Line 14 through Line 51. It would be impossible to use the conductive particle chains of Lambert to create these enlarged ends. The Lambert enlarged ends are formed in the wires before they are embedded in the elastomer. This is shown best in Figures 15 through 17. Figure 16 shows the wires with enlarged ends before they are embedded in the elastomer placed in a mold into which the elastomer is poured as shown in Figure 17. This is described in Column 9, Lines 6 through 36. A chain of conductive particles requires the surrounding elastomer for its support, and so could not exist without being embedded in the elastomer. Accordingly, it would be impossible to form these particles in any manner before they were embedded in the elastomer. Thus, Beaman could not use the Lambert conductive chains.

Even if the Lambert conductive chains were used in Beaman, the result would still not accomplish all of the elements of Claim 1 herein. As described above, Beaman does not disclose and indeed could not use conductive pads integral with the matrix and in contact with the plurality of conductive pathways. Accordingly, the combination of the references cannot achieve Claim 1. Claim 1 must thus be allowable.

Also enclosed is a 3-Month Petition for Extension of Time to file this Amendment.

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If for any reason this Response is found to be incomplete, or if at any time it appears that a telephone conference with counsel would help advance prosecution, please telephone the undersigned in Westborough, Massachusetts, (508) 898-1501.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Brian M. Dingman', is written over a horizontal line.

Brian M. Dingman
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